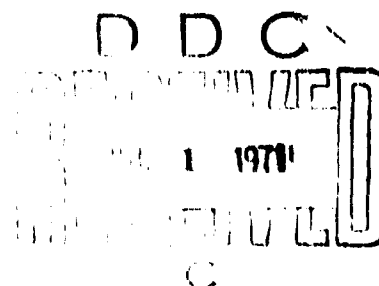NAMRL - 1127

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THE CALIFORNIA PSYCHOLOGICAL INVENTORY GIVEN TO INCOMING AOC's

AND DOR's WITH NORMAL AND "IDEAL" INSTRUCTIONS

Steven F. Bucky

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The present study was conducted in order to determine whether 1) the California Psychological Inventory (CPI) would be able to discriminate between incoming aviation officer candidates (AOC's) and other students who voluntarily dropped out of the flight program (DOR's); and 2) if not, whether changing the set so as to ask the subjects to take the test "as they would like to be" would help make the discrimination.

The CPI was administered to 95 AOC's and 51 DOR's with instructions to take the test with its normal instructions. Another group of 173 AOC's and 32 DOR's took the test with "ideal" instructions.

The results indicate that entering AOC's and DOR's obtained almost identical scores during the normal administration of the test, but with the "ideal" instructions, AOC's obtained significant elevations on 11 of 18 scales; whereas, only 2 scales were significantly elevated for the DOR group. The results suggest that the CPI should be investigated as a possible aid in the prediction of the DOR.

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Steven F. Bucky

Approved by

Ashton Graybiel, M.D.
Assistant for Scientific Programs

Released by

Captain N. W. Allebach, MC, USN
Officer in Charge

11 January 1971

NAVAL AEROSPACE MEDICAL RESEARCH LABORATORY
NAVAL AEROSPACE MEDICAL INSTITUTE
NAVAL AEROSPACE MEDICAL CENTER
PENSACOLA, FLORIDA 32512

SUMMARY PAGE

THE PROBLEM

The present study was conducted in order to determine whether 1) the California Psychological Inventory (CPI) would be able to discriminate between incoming aviation officer candidates (AOC's) and other students who voluntarily dropped out of the flight program (DOR's); and 2) if not, whether changing the set so as to ask the subjects to take the test "as they would like to be" would help make the discrimination.

The CPI was administered to 95 AOC's and 51 DOR's with instructions to take the test with its normal instructions. Another group of 173 AOC's and 32 DOR's took the test with "ideal" instructions.

FINDINGS

The results indicate that entering AOC's and DOR's obtained almost identical scores during the normal administration of the test, but with the "ideal" instructions, AOC's obtained significant elevations on 11 of 18 scales; whereas, only 2 scales were significantly elevated for the DOR group. The results suggest that the CPI should be investigated as a possible aid in the prediction of the DOR.

INTRODUCTION

In the past, personality tests have been effective in differentiating the outstanding pilots from pilots in general. Reinhardt (4) has found that on the Minnesota Multiphasic Personality Inventory, a forced-choice test consisting of ten clinical scales and three validity scales, outstanding naval aviators consistently obtain elevated scores on the K scale, which measures defensiveness, and the Mania scale; the Social Introversion scale was consistently depressed. Such a profile was interpreted by the author as indicating that the outstanding naval aviator, while defending against potential psychological weakness, is capable of handling his own problems, is flexible with a need of and a readiness for action; he is outgoing and self-sufficient.

On the Edwards Personal Preference Schedule (EPPS), which is a forced-choice test consisting of 16 scales that measure the subject's description of himself, it was found (4) that outstanding aviators when compared to the overall jet pilot population scored significantly higher on the need for achievement; there was some indication that they were also high on autonomy (a need for independence, a preference for making one's own decisions).

When studying successful pilots, using the EPPS, Fine and Hartman (1) found that there is a desire to dominate, seek new situations, and set high standards for oneself. Seeing things through, making a good impression, and heterosexual effectiveness were considered desirable traits; taking care of others and being taken care of were seen as being undesirable. The Rorschach (1), the Wechsler Adult Intelligence Scale (1), and the Maudsley (4) also have been successful in the evaluation of the enduring personality characteristics of the aviator.

In spite of the fact that pilots present clear psychodynamic profiles on the tests described above, in general such tests (2, 3, 5, 6) have not been productive at the selection level in differentiating those individuals who voluntarily drop out of the pilot training program (DOR) from the average aviation officer candidate (AOC). Modest validity coefficients have been reported for various scales, but they have not been considered to be of sufficient strength for implementation.

There are a number of possible reasons why strong differentiation has not been obtained. First, there may be no psychodynamic difference between the average AOC and the DOR. Due to the clear trends that have been obtained from the tests given to successful pilots, however, this appears to be somewhat doubtful. A second alternative is that the tests are not sensitive enough to pick up the differences. Another possibility is that AOC's and DOR's comprise a rather homogeneous group of subjects and that by submitting to the social pressure involved during the administration of psychometric tests, they obtain almost identical scores. That is, both the AOC and the DOR know what to expect from the testing situation and behave accordingly. If this is true, changing the subject's expectations or set may be sufficiently disruptive to the subject's customary defensive style of taking tests to better enable the test to discriminate between two groups.

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The purpose of the present study was to determine if the California Psychological Inventory (CPI) could be used to: 1) differentiate the AOC on entrance into the aviation training program from the DOR when it is given with its normal instructions; and 2) if the CPI is unable to make such a differentiation, to determine whether changing the instructions so as to ask the subject to answer in terms of how he would like to be would help make the discrimination.

It is predicted that: 1) AOC's and DOR's comprise a homogeneous group of students and, as a result, will achieve identical scores on the CPI when given with its normal instructions; 2) altering the instructions will produce changes in the scores, which will result in the test's ability to discriminate between the AOC and DOR.

PROCEDURE

SUBJECTS

The CPI was administered to 95 entering AOC's and 51 DOR's with the instructions to answer the questions "as honestly as possible." Another group of 173 AOC's and 32 DOR's took the CPI with the instructions: "Please answer the questions as you would like to be." It should be noted that all of the DOR's in the present study began the flight program as AOC's. Moreover, previous attrition data suggest that of the AOC group, 20 per cent will eventually drop out of the program (DOR).

TEST DESCRIPTION

The CPI is a self-descriptive personality inventory that yields measures of 18 personality scales. The inventory was designed primarily for the use of normal (nonpsychiatrically disturbed) subjects.

The scales are briefly described below:

1. Dominate (DO). To assess factors of leadership ability, domination, persistance, and social initiative.

2. Capacity for Status (CS). To serve as an index of the individual's capacity for status and not his actual or achieved status.

3. Sociability (SY). To identify persons of outgoing sociable, participative temperament.

4. Social Presence (SP). To assess factors such as poise, spontaneity, and self-confidence in personal and social interaction.

5. Self-acceptance (SA). To assess factors such as personal worth, self-acceptance, and capacity for independent thinking and action.

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6. Sense of well-being (WB). To identify persons who minimize their worries, and who are relatively free from self-doubt and disillusionment.

7. Responsibility (RE). To identify persons of conscientious, responsible, and dependable disposition and temperament.

8. Socialization (SO). To indicate the degree of social maturity, integrity, and rectitude which the individual has attained.

9. Self-control (SC). To assess the degree and adequacy of self-regulation and self-control and freedom from impulsivity and self-centeredness.

10. Tolerance (TO). To identify persons with permissive, accepting, and non-judgmental social beliefs and attitudes.

11. Good impression (GI). To identify persons capable of creating a favorable impression and who are concerned about how others react to them.

12. Commonality (CM). To identify the degree to which an individual's reactions and responses correspond to the model ("common") pattern established for the inventory.

13. Achievement via conformance (AC). To identify those factors of interest and motivation that facilitate achievement in any setting where conformance is a positive behavior.

14. Achievement via independence (AI). To identify those factors of interest and motivation that facilitate achievement in any setting where autonomy and independence are positive behaviors.

15. Intellectual efficiency (IE). To indicate the degree of personal and intellectual efficiency that the individual has attained.

16. Psychological mindedness (PY). To measure the degree to which the individual is interested and responsive to the inner needs, motives, and experiences of others.

17. Flexibility (FX). To indicate the degree of flexibility and adaptability of a person's thinking and social behavior.

18. Femininity (FE). To assess the masculinity or femininity of interests (high scores indicate more feminine interests, low scores more masculine).

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DATA ANALYSIS

The data in the present study were analyzed by means of a series of t-tests, comparing the means obtained from the "normal" and "ideal" administrations of the test for the AOC groups as well as the DOR groups. Intergroup comparisons were made comparing the normal results for the AOC and DOR and the ideal results obtained from the two groups. Making four sets of 18 comparisons should result in statistical significance in a number of scales merely by chance. Although the trends, described below, presented unequivocal consistencies and differences between the two groups, the reliability and validity of the statistical significance of any one comparison must be viewed cautiously until a cross-validation study is completed. As a result, Tukey's (honestly significant difference) procedure (7) was used to conservatively determine the degree to which the significant t's were in fact "honestly significant."

RESULTS AND DISCUSSION

Figure 1 is a graph of the CPI profiles obtained from both administrations of the tests. When asked to take the test with its normal instructions, AOC's and DOR's obtained almost identical scores on the 18 clinical scales. When the AOC's and DOR's were compared, only two scales (commonality and flexibility) achieved statistical significance (p < .01) (Table I). When under the ideal instructions, DOR's obtained scores almost identical to those scores obtained when the test was given with its normal instructions. Again only two scales (dominance and good impression) achieved statistical significance.

A comparison of the scores obtained by the AOC groups shows that there were marked elevations during the ideal administration of the test. The results, as described in Table I, indicate that entering AOC's would like to see themselves as having more leadership potential (dominance), being more resourceful (capacity for status), more responsible and socially mature (sociability), having more self-control (responsibility), and being better able to project a "good impression" than their present level of functioning (p < .01). AOC's also indicated that they would like to be more persistent and organized (achievement via conformance); more spontaneous and rebellious toward rules, restrictions, and constraints (psychological mindedness); and less interested in how others react to them (commonality) than their present level of functioning (p < .01).

The results also suggest that AOC's already feel that they have achieved an ideal level of functioning with regard to their ability to lead an active, oriented, vigorous type of life (social presence). They feel that they have achieved an ideal level of functioning in terms of: their feelings of self-acceptance; being energetic and versatile (well-being); their ability to achieve via independence; their intellectual efficiency; their flexibility; and sexuality.

The results described above are seen as presenting evidence that AOC's and DOR's generally comprise a rather homogeneous group of subjects; they obtained almost identical profiles. This is consistent with previous research, and as a result, it appears that

Table I

CPI Means, Standard Deviations and t values Obtained by AOC's and DOR's Under Normal and Ideal Set Conditions

| CPI Scales	AOC Normal (N = 95)		AOC Ideal (N = 175)		DOR Normal (N = 51)		DOR Ideal (N = 32)		t values 1-2	t values 3-4	t values 1-3	t values 2-4
	x̄	S.D.	x̄	S.D.	x̄	S.D.	x̄	S.D.				
Dominance	58.17	10.65	63.37	9.64	55.05	11.38	62.59	7.95	4.06**	3.24**	1.64	.43
Capacity for Status	53.48	8.99	61.56	8.01	52.51	10.76	55.37	8.99	7.53**	1.24	.58	3.92**
Sociability	54.52	9.71	60.84	7.94	53.62	10.38	57.09	8.50	5.72**	1.57	.52	2.41*
Social Presence	57.53	9.99	58.10	9.26	58.13	11.42	61.34	9.96	.46	1.89	.33	1.72
Self Acceptance	60.21	9.67	60.74	9.06	57.56	10.86	59.90	7.25	.45	1.26	1.50	.49
Well Being	50.91	9.89	53.29	12.89	49.68	11.49	51.06	13.73	.55	.49	.67	.38
Responsibility	49.69	9.72	54.58	8.04	48.13	8.43	51.09	8.37	4.35**	1.54	.96	2.23*
Socialization	51.10	9.33	54.28	9.23	49.58	6.86	51.68	7.54	2.67**	1.28	1.01	1.49
Self-Control	48.76	9.37	55.73	8.37	47.07	8.31	49.93	8.57	6.2**	1.49	1.07	3.57**
Tolerance	51.60	10.25	57.11	8.21	51.05	8.99	54.6	9.06	4.77**	1.57	.32	1.75
Good Impression	48.38	11.77	64.70	12.41	47.92	8.49	55.78	13.70	10.51**	3.19**	.37	3.65**
Communality	54.07	7.16	45.72	12.73	48.38	16.33	44.50	15.22	5.17**	.58	2.78**	.09
Achievement vic Conformance	50.87	10.41	56.44	9.97	49.54	6.46	51.59	9.92	4.35**	.99	.79	2.52*
Achievement via Independence	53.30	10.01	53.09	9.22	53.68	9.64	54.06	8.18	.17	.76	1.37	.55
Intellectual efficiency	52.67	9.52	53.41	9.24	51.56	10.89	53.65	10.28	.42	.86	.62	.13
Psychological Mindedness	54.53	10.17	58.77	7.99	53.64	9.39	56.93	6.43	3.74**	1.59	.51	1.18
Flexibility	48.63	12.19	47.31	11.21	54.29	10.65	51.53	10.33	.89	1.15	2.77**	1.97*
Femininity	46.92	8.99	47.75	8.52	47.52	9.64	49.31	8.86	.74	.84	.37	.94

*p < .05
**p < .01

Tukey's procedure:
***p < .05
****p < .01

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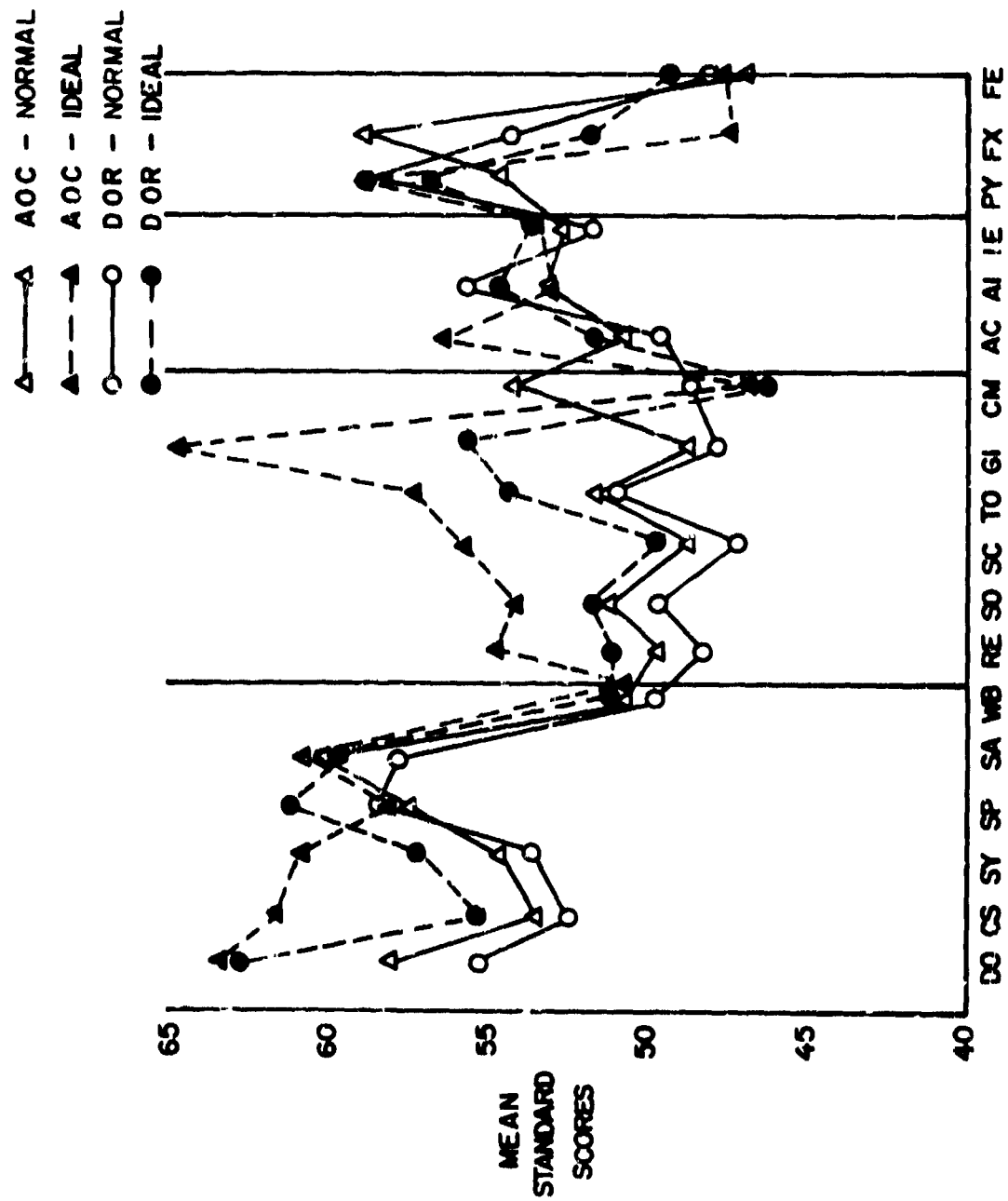
CPI SCALES

Figure 1

Profiles of scores obtained under the normal and ideal set conditions.

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pencil and paper personality tests given with their normal instructions will continue to be unable to discriminate between the two groups. At least part of the reason for such consistency appears to be the subject's test taking attitudes. That is, AOC's and DOR's have had a considerable amount of experience taking tests. They know what to expect, and if nothing interferes with their set of expectations, in general socially acceptable responses are given. However, when the subject's "set" is broken, the present results indicate that the test is better able to discriminate between the two groups.

When applying Tukey's "honestly significant" procedure, no significant differences were obtained in the comparison of the AOC and DOR groups with the normal administration of the test; nor were significant differences observed for DOR's comparing the normal and ideal results. The only significant differences were found on the good impression $(p < .01)$, capacity for status $(p < .01)$, and self-control $(p < .05)$ scales, when comparing the normal and ideal results for the AOC group. These findings, coupled with the fact that 20 per cent of the AOC group will eventually DOR, suggest that the results of the present study are conservative estimates of the differences between the two groups.

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